

***Zasmidium sinense* sp. nov. from Guangdong, China**

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ABSTRACT—*Zasmidium sinense*, collected from dead branches of an unidentified broadleaf tree in Guangdong Province, China, is described and illustrated. The new species is characterized by differentiated conidiophores having a branched head with polyblastic, sympodial, conspicuously cicatrized conidiogenous cells that produce solitary, obovoid to clavate, pale brown, smooth, 1(–2)-euseptate conidia.

KEY WORDS—asexual Ascomycota, hyphomycetes, *Mycosphaerellaceae*, saprobes, taxonomy

Introduction

Hyphomycetous fungi are highly diverse on dead branches. They are essential components in forest ecosystems and play important roles in decomposition and nutrient recycling, but their geographical distribution and alpha taxonomy are poorly studied. Our group has investigated saprobic hyphomycetes for about 17 years during which many new genera and species have been named (e.g., Zhang & Shi 2005, Zhang & al. 2009; Xia & al. 2015; Ma & al. 2016,

2021; Zhang 2018; Xu & al. 2019, 2020). Our continuing survey of saprobic hyphomycetes from dead branches in Guangdong Province, China, revealed a previously undescribed species, proposed here as *Zasmidium sinense*.

Materials & methods

Dead branches were collected from a forested area in Liuxihe National Forest Park, Guangdong Province, China. The samples were incubated under humid conditions, and periodically examined as described by Ma & al. (2011). Microphotographs were prepared using a Nikon Eclipse E200 and SmartV550Dc digital camera, with a 100× (oil immersion) objective using the same background and scale. Adobe Photoshop 7.0 was used to assemble photographs into plates. The specimen is deposited in the Herbarium of Jiangxi Agricultural University, Plant Pathology, Nanchang, Jiangxi, China (HJAUP).

Taxonomy

Zasmidium sinense Jing W. Liu, Jian Ma, X.G. Zhang &
R.F. Castañeda, **sp. nov.**

FIG. 1

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Differs from *Periconiella campograndensis*, *P. cocoes*, and *P. leptographioides* by its obovoid to clavate, pale brown, smooth, 1(–2)-euseptate, smaller or narrower conidia.

TYPE: China, Guangdong Province, Liuxihe National Forest Park, on dead branches of an unidentified broadleaf tree, 12 July 2014, J. Ma (**holotype**, HJAUP M0090).

ETYMOLOGY: referring to the country in which the fungus was collected.

COLONIES on the natural substratum effuse, dark brown. Mycelium superficial and immersed, composed of branched, septate, pale brown, smooth-walled hyphae. CONIDIOPHORES $\leq 265 \times 4\text{--}8.5\ \mu\text{m}$, 9–20-septate, single or in groups, macronematous, mononematous, cylindrical, erect, straight or flexuous, branched towards the apex, smooth, often with 1–2 enteroblastic percurrent extensions, dark brown, paler towards the apex. Conidiogenous cells holoblastic, polyblastic, sympodial elongated, integrated and discrete in primary or secondary branches incorporated, subcylindrical to cylindrical, pale brown, bearing numerous cicatrized, protuberant loci. Conidial secession schizolytic. CONIDIA solitary, acropleurogenous, 1(–2)-euseptate, asymmetrical, obovoid to clavate, truncate and slightly melanized at the base, rounded apex, pale brown, smooth, $6\text{--}9 \times 2\text{--}3\ \mu\text{m}$.

Discussion

Zasmidium Fr. was established by Fries (1849) with *Racodium cellare* Pers. [(Persoon 1794) $\equiv$ *Zasmidium cellare* (Pers.) Fr.] as its type; the genus is currently



FIG. 1. *Zasmidium sinensis* (holotype, HJAUP M0090).
A–C. Conidiophores, conidiogenous cells, and conidia; D. Conidiophore head;
E. Conidia. (the pale-brown color assumed a greenish cast during processing).

placed in *Mycosphaerellaceae* Lindau based on molecular phylogenetic analysis (Arzanlou & al. 2007, Videira & al. 2017). It is morphologically characterized by semi-macronematous to macronematous conidiophores bearing polyblastic, sympodial conidiogenous cells with conspicuous, somewhat thickened and darkened-refractive, planate loci, and solitary or catenate, acropleurogenous, aseptate to pluri-euseptate conidia with a conspicuous, slightly pigmented, thickened and refractive hilum and schizolytic secession (Arzanlou & al. 2007, Seifert & al. 2011, Braun & al. 2013, Li & al. 2016, Videira & al. 2017). About 150 species are accepted in the genus (Wijayawardene & al. 2020), with most species originating from plant hosts (Shivas & al. 2010, Crous & al. 2014, Quaedvlieg & al. 2014, Zhao & al. 2016).

Zasmidium sinense exhibits the key characters of *Periconiella* Sacc. as differentiated conidiophores having a branched head with polyblastic,

sympodial, conspicuously cicatrized conidiogenous cells (Braun 2004; Braun & al. 2015; Ellis 1967; Kirschner & Piepenbring 2008; Kirschner & Chen 2010; Kirschner & Wang 2015; McKenzie 1990, 1996). Our initial thought was to place this fungus in *Periconiella*. However, Videira & al. (2017) reduced *Periconiella* to synonymy with *Zasmidium* based on the phylogenetic position and morphological characters of its type species, *P. velutina* (G. Winter) Sacc. Currently, only *P. velutina*, *P. arcuata* Arzanlou & al., and *P. musae* Stahel ex M.B. Ellis have been transferred to *Zasmidium*, whereas numerous others remain in *Periconiella* (Videira & al. 2017, Index Fungorum 2021).

Morphologically, *Zasmidium sinense* is most similar to *Periconiella campograndensis* Dorn.-Silva & Dianese, *P. cocoes* M.B. Ellis, and *P. leptographioides* B. Sutton. *Periconiella campograndensis* differs by its elliptical, verrucose, hyaline to pale brown, aseptate, larger conidia ($7\text{--}15 \times 4\text{--}6 \mu\text{m}$; Dornelo-Silva & Dianese 2003); *P. cocoes* differs by its obclavate or shortly clavate, smooth or minutely verruculose, versicolored, wider ($3\text{--}4 \mu\text{m}$ wide) conidia with a thicker and subglobose upper cell (Ellis 1967); and *P. leptographioides* differs by its ovoid to obovoid, verruculose, medianly 1-euseptate, larger conidia ($10\text{--}12.5 \times 4\text{--}5 \mu\text{m}$; Sutton 1993).

Zasmidium sinense is also morphologically similar to *Thysanorea* Arzanlou & al. (Arzanlou & al. 2007) in the branched conidiophores. However, the conidiophores of *Thysanorea* have a complex head comprising $\leq$ six levels of branches (Arzanlou & al. 2007), while the branching in *Zasmidium sinense* is limited, with mainly primary and secondary branches.

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